Alberta Innovates – Energy and Environment Solutions

2013-14 Annual Report

Alberta

Alberta Innovates
Energy and Environment Solutions

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EXECUTIVE SUMMARY

AI-EES Vision
Alberta leads the world in developing innovative energy and environmental technologies building on our natural advantages to achieve a socially responsible, diversified and prosperous economy.

Alberta Innovates – Energy and Environment Solutions (AI-EES) aims to strengthen Alberta's research and innovation capacity. Our **core business** is to position Alberta to achieve superior environmental performance while growing and diversifying the energy economy. This will ensure that Alberta continues to lead the country in exports, job growth and wealth generation in support of economic and social well-being of Albertans and Canadians.

As the lead agency for energy and environmental research innovation in Alberta, AI-EES brings together decision makers from government and industry as well as research and technology organizations to develop solutions for the biggest challenges facing Alberta's energy and environment sectors. In 2013-14, AI-EES worked to implement its mandate through its three strategic areas:

- Energy Technologies
- Renewables and Emerging Technologies
- Water and Environmental Management

Reporting on Outcomes

Each year, the Corporation evaluates its performance using ProGrid methodology[1] and reports on established outcomes and performance measures. 2013-14 results show AI-EES is making significant progress toward its 2020 and 2030 goals. In its three operating areas AI-EES fine-tuned its major and minor areas of focus based on the challenges facing the province and Alberta Government priorities in energy and environment. Results across these areas continue to be solid:

- Energy Technologies continues to have the strong partnerships needed for supporting commercial pathways in its suite of technologies, despite lacking the full financial capability to make progress in its five specific program areas (i.e. bitumen and heavy oil; upgrading and processing; carbon capture demonstration plants; value-added products; and tight oil and gas).
- Renewables and Emerging Technologies has strengthened its capacity by introducing energy systems modeling and technology intelligence and mapping initiatives. Its waste-to-value added program made the most impact in 2013-14. The group has hosted industry workshops in Energy Storage and Bioproducts and commissioned reviews of bitumen air injection field trials and the prospects of shale oil and shale gas in Alberta.
- Water and Environmental Management made substantive progress with its water and tailings competition fully subscribed, with 20 projects now underway.

[1] ProGrid Evaluation Solutions website http://progrid.info/

With regard to the Corporation's specific goals, in 2013-14, AI-EES achieved the following:

- **Securing Maximum Value for Alberta's resources:** invested $4.1 million in 25 initiatives to enhance value
- **Working with the Alberta Government and agencies to co-develop research projects that will inform policy and ministry strategies:** AI-EES invested $1.1 million in 19 Technology Informing Policy projects and other Alberta government departments invested an additional $3.2 million
- **Expanding innovation capacity:** invested $2.1 million in 13 Chair and Research Centres of Excellence in post-secondary institutions in addition to $3.9 million supporting 33 academic projects
- **Improving environmental performance:** invested $10 million in 69 initiatives that improved environmental performance in the development of energy resources
- **Balanced portfolio:** invested a total of $14.2 million this budget year, in 94 projects[2] aligned to meet the goals for cleaner hydrocarbons and renewable energy, reduced greenhouse gas (GHG) emissions, and advancing the management of tailings and sustainable water initiatives. Added to this are 4 projects which are in progress (but no payments in 2013-14) and another 20 projects that are approved for funding by our Board. In total AI-EES is managing 118 active projects. Over the lifetime of these 118 projects, AI-EES will have invested $137.6 million, typically with a leverage factor of three.

Supporting CCEMC and the reduction of GHG emissions

AI-EES also provided technical counsel, project adjudication and project management for the Climate Change and Emissions Management Corporation (CCEMC) within a portfolio of 60 projects (valued at over $776.4 million and a CCEMC commitment of $153.1 million). The CCEMC projects cover the entire innovation chain with the greenhouse gas emission reduction conservatively estimated at about 10.2 megatonnes (MT) by 2020.

Thought leadership

In 2013-14, AI-EES staff continued its contribution to global thought leadership – as they were called upon to deliver more than 80 presentations on topics such as innovation, sustainability in oil sands development, water treatment and conservation, waste to biofuels, carbon capture, competitiveness strategies and energy storage solutions. This represents about a 23 per cent increase over last year.

Knowledge transfer

As important as advancing the Corporation's work, is sharing outcomes. In 2013-14 AI-EES made significant progress meeting its Knowledge Transfer objectives. AI-EES implemented its Open Text Content Management system and completed upgrades that will allow for the seamless transfer and sharing of research outcomes. Work on the Corporation's Research Report Database – the backbone of its records management system – helps AI-EES deliver on policies of open innovation within collaborative projects and enhance transparency in the energy and environment sectors.

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[2] This includes 23 projects that are Fee for Service contracts with research providers. The 2013-14 expenditure on these projects is $1.8 million and is included in Technical Support Services in the Statement of Operations in the Financial Statements.

Staying ahead of emerging issues

In its 2013-16 Business Plan, AI-EES identified how the Corporation would work with key Alberta Ministries, industry and research partners to develop a comprehensive plan to initiate Inclusive Innovation Dialogues. Instead of developing a formal model, we engaged with stakeholders informally, attending meetings with the public, First Nations and non-government organizations with the goals of understanding public concerns before they become issues and improving education levels around technology advancements and the value of innovation across our sector. This shift, allowed us to put a greater focus on Technology Scouting and Market Intelligence gathering, an area AI-EES believes will have a greater impact on the Corporation's ability to meet its long-term targets.

ACCOUNTABILITY STATEMENT

Alberta Innovates – Energy and Environment Solutions' annual report for the year ended March 31, 2014 was prepared under the Board's direction in accordance with the Alberta Research and Innovation Regulation, and the ministerial guidelines established pursuant to the *Alberta Public Agencies Governance Act (APAGA)* – proclaimed June 12, 2013 and the *Fiscal Management Act* – proclaimed April 1, 2013. All material economic, environmental, or fiscal implications of which we are aware have been considered in the preparation of this report.

Original signed by

Signed by Eric Newell,
Chair of the Board

June 25, 2014

MANAGEMENT'S RESPONSIBILITY FOR REPORTING

Alberta Innovates – Energy and Environment Solutions' (AI-EES) management is responsible for the preparation, accuracy, objectivity and integrity of the information contained in the annual report including the financial statements, performance results and supporting management information. Systems of internal control are designed and maintained to produce reliable information that meet reporting requirements, and to ensure that transactions are executed in accordance with all relevant legislation, regulations and policies, reliable financial records are maintained, and assets are properly accounted for and safeguarded. The Annual Report has been approved by the Board of Directors and is prepared in accordance with ministerial guidelines.

The Auditor General of the Province of Alberta, the corporation's external auditor appointed under the *Auditor General Act*, performs an annual independent audit of AI-EES's financial statements in accordance with Canadian auditing standards.

Original signed by

Signed by Eddy Isaacs,
CEO

MESSAGE FROM THE BOARD CHAIR

It's my pleasure, on behalf of our Board of Directors and the team at Alberta Innovates – Energy and Environment Solutions (AI-EES), to present our fifth Annual Report to the Government of Alberta and people of this province. Since our inception in January 2010, we have been advancing our mandate by bringing together decision makers from government, industry and Campus Alberta, as well as research and technology organizations to develop solutions for a wide range of sector issues. As you read this Annual Report, you will see clearly how AI-EES is uniquely positioned to support the Government of Alberta's strategic plan and the innovation system's key outcome to build a more innovative and competitive Alberta.

We aim to strengthen Alberta's research and innovation capacity with the ultimate objective of developing cleaner energy, reducing the environmental impacts of energy development and better managing Alberta's water resources. Each year, the Corporation evaluates its performance using ProGrid and reports on established outcomes and performance measures that are signed off by the Government of Alberta.

In 2013-14, AI-EES invested $14.2 million on 94 projects aligned to meet our goals for cleaner hydrocarbons and renewable energy, reduced greenhouse gas (GHG) emissions as well as tailings and sustainable water initiatives. There are an additional 24 projects underway, bringing the total number of active projects to 118. Over the lifetime of these 118 projects, AI-EES will have invested a total of $137.6 million, typically with a leverage factor of three. We also provided technical counsel, project adjudication and project management for the Climate Change and Emissions Management Corporation (CCEMC) within a portfolio of 60 projects (valued at over $776.4 million and a CCEMC commitment of $153.1 million).

To further support our operational goals, AI-EES signed an Interchange Agreement with NRCan's CanmetENERGY, the Canadian leader in clean energy research and technology development. This Agreement is an excellent example of the possibilities for alignment of innovation and commercialization.

The year ahead

To most efficiently address Alberta's key challenges, AI-EES modified its Major Business Strategy for 2014-17. The changing energy and environment landscape globally, and in Alberta, presents the ideal opportunity to further develop AI-EES' Advancing Clean Energy Commercialization business model. The implementation of this model will make AI-EES and Alberta's innovation system better able to respond to market opportunities and will lead to greater commercialization of technologies.

AI-EES' tight focus on energy and the environment can continue to deliver tangible outcomes for Alberta because our work underpins the tenets of Alberta's societal values for environmental performance and economic well-being. We are proud of our accomplishments to date and look forward to the year ahead. In 2014-15, we will once again adapt our ProGrid performance measures to align to Alberta's changing landscape, as well as our major focus areas, which speak to market shifts and opportunities.

Original signed by

Signed by Eric Newell,
Chair of the Board

June 25, 2014

RESULTS ACHIEVED[3]

BASED ON THE CORPORATIONS' GOALS, OUTCOMES AND PERFORMANCE MEASURES

To meet its goals, AI-EES is continuously improving its business processes and performance metrics. As a result, the first four measures used to report on the Corporation's 2013-14 progress (see below), will not be used in future years. New measures have been introduced in the 2014-17 Business Plan and will be used for reporting in the next edition of the AI-EES Annual Report.

1. Securing maximum value

Goal Statement: AI-EES invests in projects that will secure the maximum value for Alberta's resources.

	2012-13 Actual	2013-14 Actual
Number of initiatives in 2013-14 that will enhance the value of Alberta's resources	29	25
Total AI-EES payments in 2013-14 to these initiatives	$7.1 m	$4.1 m

Highlights in 2013-14:

With industrial collaboration, AI-EES developed and supported strategic investigation and concept advancement at post secondary institutions, advanced concept definition and pre-pilot activities in partnership with the Federal Government at CANMET facilities, and worked with the CCEMC to further develop a new partial upgrading pilot that has the potential to enhance yield of processed bitumen while reducing energy and diluents requirements.

AI-EES invested $29 million and provided technical counsel to help Edmonton become a leader through its award-winning Waste Management Centre, which intends to divert 90 per cent of the city's waste from the landfill and convert it into value-added biofuels. Commissioning of Enerkem's facility in December 2013, which will be producing methanol in 2014, demonstrates Alberta's first innovative step toward a zero-waste strategy, which would see the phasing out of large landfills and waste lagoons in Alberta, while creating value-added energy products from municipal solid wastes.

2. Informing policy

Goal Statement: AI-EES works with government of Alberta departments and agencies to determine their research needs and to co-develop projects that will inform policy and Ministries strategies.

	2012-13 Actual	2013-14 Actual
Total number of active Technology Informing Policy (TIP) Projects each fiscal year	9	19
Total AI-EES payments in 2013-14 to these projects		$1.1 m
Total AI-EES investment in active TIP projects over the life of the project	$2.8 m	$5.2 m
Total Alberta government investment in active TIP projects over the life of the project (not including AI-EES)	$1.6 m	$3.2 m

[3] Appendix 1 has details on how the measures are derived.

Highlights in 2013-14:

The TIP committee is growing stronger and meeting more often. In 2013 – 14 the number of active projects more than doubled, demonstrating increased collaboration and partnership between AI-EES and the Government of Alberta. The highest profile collaborations in this area include:

- An Advanced Air LiDAR project funded by Alberta Environment and Sustainable Resource Development for $1.8 million
- A flammability study on Light Ends Composition in Dilbit and Conventions Crudes for $9,000
- A study that identified The Potential and Prospects of Shale Oil and Shale Gas Production in Alberta for $43,000.

3. Expanding innovation capacity

Goal Statement: AI-EES supports innovation by academia.

	2012-13 Actual	2013-14 Actual
Number of Chairs and Centres currently managed	10	12
Number of Other Projects at Post-Secondary Institutions	25	36
Total AI-EES payments to Chairs and Centres in 2013-14		$2.1 m
Total AI-EES payments to other Post Secondary Projects in 2013-14		$3.9 m
Total AI-EES investments (including Chairs and Centres) at Post-Secondary Institutions over the life of the project	$37.9 m	$51.1 m
AI-EES Total investment (other than Chairs and Initiatives) at Post Secondary Institutions over the life of the project	$7.5 m	$14.9 m

Highlights in 2013-14:

The start of the Water and Tailings projects increased the number of initiatives at the university level by 16 projects and $8.1 million in total funding from AI-EES. AI-EES has funded four projects outside of Alberta, including one project in the Netherlands.

4. Improving environmental performance

Goal Statement: AI-EES invests in projects that improve environmental performance in the development of all energy resources.

	2012-13 Actual	2013-14 Actual
Number of initiatives that improve environmental performance in the development of energy resources	38	69
AI-EES payments to these initiatives per year	$6.7 m	$10 m

Highlights in 2013-14:

The Water and Tailings portfolio was introduced in 2013-14. Of the $3.4 million in expenses, $3.2 million was related to the approval of 18 projects in year 2013-14.

5. Balanced portfolio

Goal Statement: AI-EES maintains a balanced portfolio of projects in its three strategic areas.

AI-EES tracks projects by strategic area to ensure that our efforts are appropriately weighted across each of our portfolios and aligned to our major and minor focus areas. The chart below shows the Corporation's 118 active projects and total investment of $137.5 million in innovation, and the relative percentage of funding aligned to each strategic area this budget year. A list of projects by strategic area is provided in Appendix 2.

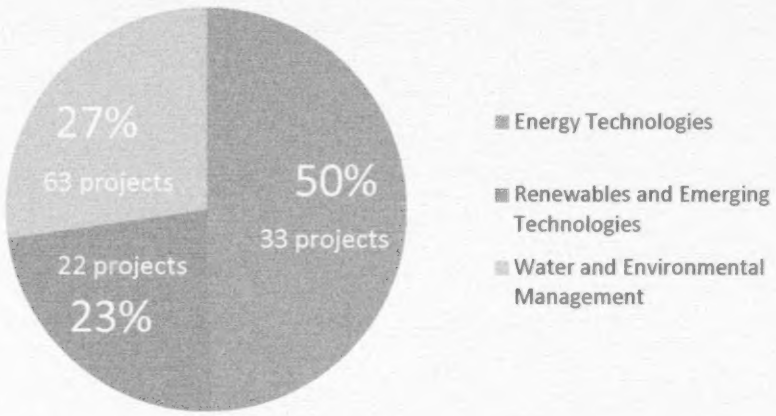

Figure 1: Percent of total committed funds invested in each strategic area.

In 2012-13, AI-EES outlined its priorities in each strategic area.

Energy Technologies

- **Priority:** Pilot(s) advancing lower carbon bitumen recovery technologies using steam, electromagnetic heating and solvents in sandstone and carbonate reservoirs.
- **2013-14 progress:** AI-EES worked with industry and the research community to develop research programs that have advanced the fundamental understanding and knowledge of bitumen chemistry and bitumen reservoirs and in partnership with the CCEMC, have initiated four large scale field pilots advancing novel recovery techniques that have the potential to substantially reduce water and energy input requirements over current commercial methods.

- **Priority:** Field upgrading demonstration having high yield and removing the need for diluents.
- **2013-14 progress:** With industrial collaboration, AI-EES has developed and supported strategic investigation and concept advancement at the Universities, has advanced concept definition and pre-pilot activities in partnership with the Federal Government at CANMET facilities, and has worked with the CCEMC to begin a new partial upgrading pilot that has the potential to enhance yield of processed bitumen while reducing energy and diluents requirements.

- **Priority:** Produce syngas from deep fossil energy resources through in situ gasification in order to generate power, hydrogen, liquid fuels and petrochemicals.
- **2013-14 progress**: AI-EES worked with industry and the research community to develop research programs that have advanced the fundamental understanding and predictive modeling capability of underground coal gasification in support of future technology demonstration opportunities.

Renewable and Emerging Technologies:

- **Priority:** Support the development of a vibrant waste utilization industry which contributes substantially to Alberta's supply of renewable energy and economic diversity through the production of bioenergy and novel value-added products.
- **2013-14 progress:** AI-EES advanced research on a suite of approaches that will provide all municipalities across the province with alternatives to move to waste-to-fuels and even waste-to-energy initiatives. One-year waste-characterization studies were completed for Leduc and the County of Red Deer. An Alberta Organic Waste Inventory study was also initiated and progress was made toward a waste-to-valued demonstration project in a rural community.

- **Priority:** Collaborate with stakeholders to accelerate development and deployment of renewable energy and energy storage technologies as well as emerging technologies, such as small nuclear reactors.
- **2013-14 progress:** In November 2013, an Energy Storage Stakeholder Workshop led to identification of technology gaps. These gaps are now being addressed at the University of Calgary, which is developing a series of low cost catalyst candidates and an integrated process, which can effectively convert natural gas and low cost carbon resources simultaneously to valuable commodities.

Water and Environmental Management:

- **Priority:** Field testing of tailings reclamation and water treatment technologies.
- **2013-14 progress:** AI-EES is working with oil sands companies in the development of four new technologies, two at lab stages (electro-kinetic settling, and cross-flow filtration) and two at field demonstration (dual polymer flocculation, and Na-silicate consolidation). As well, AI-EES is also working with COSIA Tailings EPA in the development of an end pit lake field demonstration project. AI-EES is also providing strong support to Environment and Sustainable Resource Development in finalizing the Tailings Management Framework (TMF). The technologies and policy framework together will have a significant impact in tailings management within five years.
- **Priority:** Testing advanced carbon capture technologies to reduce Carbon Capture and Storage costs and enable CO_2 enhanced oil recovery.
- **2013-14 progress:** AI-EES and CCEMC together are working with technology providers and end users (oil sands companies) on nine carbon capture technologies. Four of the technologies (HTC, CO_2 Solutions, Inventys, and MTR) are in the field testing stage. There are strong indications that some of the technologies can reduce capture costs by more than 50 per cent compared to traditional chemical solvent processes. In addition, AI-EES has completed a barrier analysis for CO_2-EOR in Alberta and is now engaging researchers and partners to overcome the barriers.

- **Priority:** Integrated land management and biodiversity conversation to improve the understanding and practices in integrated land management and biodiversity conservation in oil sands region.
- **2013-14 progress:** In November 2013, AI-EES, COSIA and the University of Alberta announced the creation of the Alberta Biodiversity Conservation Chairs research program. The program is being led by two leading University of Alberta conservation biologists, Dr. Stan Boutin and Dr. Scott Nielsen. The Chairs' research programs are providing for greater understanding of cause-effect relationships between industrial developments and biodiversity, developing landscape-management strategies to support biodiversity conservation, and developing strategies and tools for restoration of biodiversity and facilitation of ecosystem recovery. Much research in this area is already underway, including projects investigating: critical aspects of caribou biology and caribou habitat; rare plant and animal species monitoring; species behavior to habitat fragmentation; and the application of restoration practices to recover degraded habitats.

Water Resources Sustainability

- **Priorities**: Water Security, Risk and Vulnerability; Watershed Stewardship and Ecosystem Management; and Increased Conservation, Efficiency and Productivity.
- **2013-14 progress:** AI-EES has initiated 18 new projects in Water Resources Sustainability:

    - Water Security, Risk and Vulnerability: AI-EES has focused on source water protection and water quality protection in rural Alberta. This contributes to the Water-for-Life goal of securing drinking water.

    - Watershed Stewardship and Ecosystem Management: One of the key projects AI-EES has focused on is improving the water management of the South Saskatchewan River Basin (SSRB). This contributes to the Water-for-Life goal in healthy aquatic ecosystems. This has also generated a positive impact in flood management strategies.

    - Increased Conservation, Efficiency and Productivity: AI-EES has focused on SAGD water treatment technologies. Two technologies are being field tested, and two more are going to field testing and demonstration. These technologies have the potential to increase the water recycling rate to above 90 per cent and contribute to a 30 per cent reduction in GHGs through water treatment.

6. **Accelerate commercialization**

Goal Statement: AI-EES invests in a portfolio of projects along the Technology Readiness Levels (TRL) scale.

AI-EES evaluates projects and tracks their success by assessing their TRL relative to progress and milestones achieved (see Figure 2). This allows AI-EES to maintain a balanced portfolio of projects along the pathway towards commercialization, keeping a number of projects entering the spectrum at the early ideas stage and developing technology transfer strategies when projects move closer to commercialization.

As of March 31, 2014, the 118 active projects in the AI-EES portfolio were analyzed and placed on the simplified TRL scale of research, development, pilot, demonstration and commercialization. AI-EES, as the project manager for projects of the Climate Change and Emissions Management Corporation (CCEMC), also tracks the 60 active projects in the CCEMC portfolio. The chart shows a balanced portfolio with AI-EES projects mostly at the earlier stages of development and CCEMC projects towards the commercialization end. Some projects originally developed with AI-EES and that fit the CCEMC mandate, have transitioned to being funded by the CCEMC to see them through the more expensive stages of pilot and demonstration.

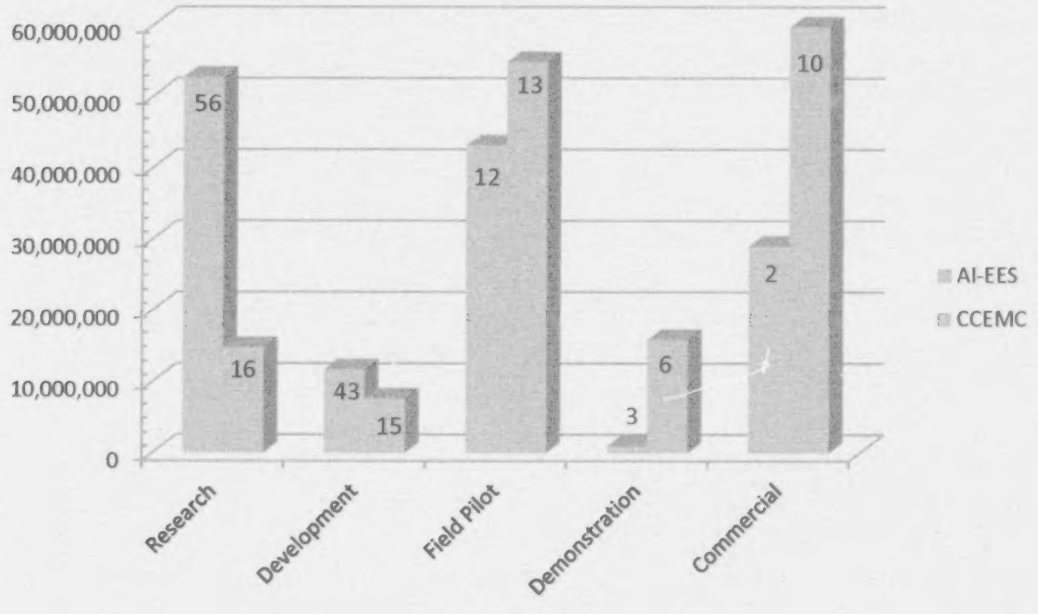

Figure 2: *Mapping AI-EES' active projects along the innovation path. Number of projects in each level is noted on the bar.*

OVERALL ACHIEVEMENT OF LONG TERM TARGETS - BUSINESS TRACKING

AI-EES' vision is that Alberta leads the world in developing innovative energy and environmental technologies that build on our natural advantages. To achieve this outcome, AI-EES has established long term targets aligned with provincial strategies. These targets ensure the Corporations' initiatives are aligned to Alberta priorities.

AI-EES uses the ProGrid® methodology to measure overall progress towards its long term 2020 and 2030 goals. In its three operating areas AI-EES fine-tuned its major and minor areas of focus based on the shift in challenges facing the province this year. Results across these areas continued to be solid in 2013-14:

- Energy Technologies continues to have the strong partnerships needed for commercializing its suite of technologies, yet lacks the full financial capability to make progress in its five specific program areas (i.e. bitumen and heavy oil; upgrading and processing; carbon capture demonstration plants; value-added products; and tight oil and gas)
- Renewables and Emerging Technologies has strengthened its management capacity and its environmental strategies response – its waste-to-value added program made the most impact in 2013-14
- Water and Environmental Management made substantive progress, its water and tailings competition was fully subscribed, with 18 projects now underway.

Progress within each strategic area is measured annually against a set of criteria. The summary grid shown below illustrates that AI-EES is making progress toward its long term goals overall.

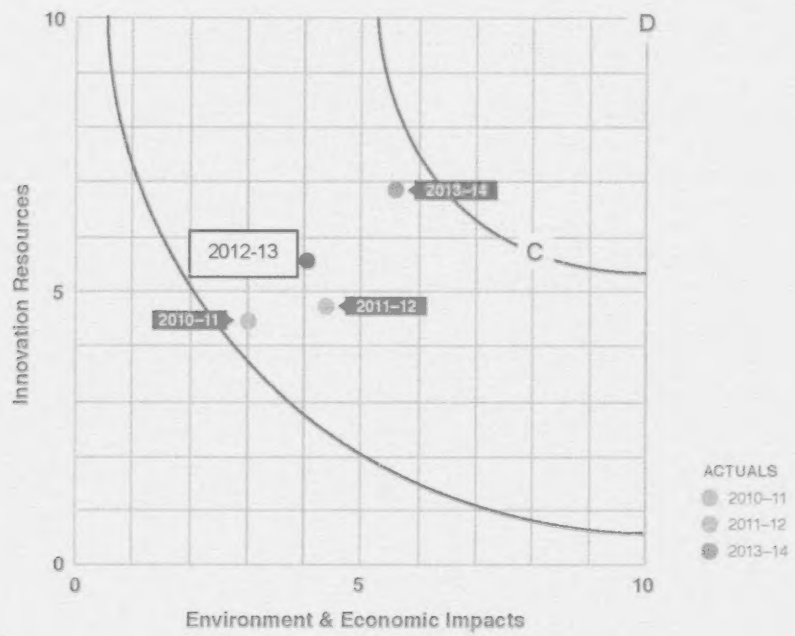

Figure 3: *ProGrid Summary Performance Grid showing the progress that is being made to reach the 2030 goals.*

Revenue Variances:

2013-14 Budget vs 2013-14 Actual Revenue Received from the Government of Alberta was substantially higher ($6.3 million) as the budget was built using the grant cash received instead of using the revenue recognized as it was expended. Because our expenditures were lower than budget, the amount of revenue recognized was also lower.

AI-EES signed an interchange agreement with the Government of Canada in January 2014 resulting in increased grants from the federal government.

Interest income was higher than budgeted due to increased funds retained in the bank.

Deferred revenue increased by $11 million over 2012-13 primarily due to one grant from Alberta Energy for $9.6 million for future work on waste to energy and one grant from Alberta Innovation and Advanced Education for $750,000 for future work on membrane technology.

Expenditure Variances:

Grants and Technical Support Services:

2013-14 budget was higher than actual in all cases due to creation of an overly optimistic budget. The Water and Tailings grants were initially projected to be finished in 2014-15 but due to the time delay in running the competition and finalizing grant agreements, these projects will not be completed until 2016-17. This means that the budget for the first two years is high.

Administration:

In 2013-14, the amount received from CCEMC for services provided by AI-EES was used to decrease the budget for Administration by $750,000. This is the difference between the actual and the budget amount. There is an increase over 2012-13 due to increase staff count, along with attendant increases in computers, travel, telephones, benefits and pensions.

Actual receipts from the CCEMC for services were higher than budgeted and higher than last year primarily due to increased activity around the Grand Challenge. This essentially added another grant competition for the AI-EES staff to manage, evaluate and adjudicate.

OPERATIONAL OVERVIEW

Major Business Strategy shift

To most efficiently address Alberta's key challenges, AI-EES modified its Major Business Strategy for 2014-17. AI-EES' portfolio already includes commercialization opportunities in energy storage, bioenergy, carbon capture and especially water treatment. The changing energy and environment landscape globally, and in Alberta, however, presents the ideal opportunity to further develop AI-EES' Advancing Clean Energy Commercialization business model.

The implementation of this model will make AI-EES and Alberta's innovation system better able to respond to market opportunities and will lead to greater commercialization of technologies.

To further support operational goals, in 2013-14, AI-EES signed an Interchange Agreement with NRCan's CanmetENERGY, the Canadian leader in clean energy research and technology development. Through this Agreement, CEO, Dr. Eddy Isaacs, became Director General of this facility in a part-time capacity. This relationship will bring greater synergy between Federal and Provincial research and technology in sustainable unconventional resource development and water and renewable energy (including electricity). This Agreement is an excellent example of the possibilities for alignment of innovation, research and commercialization and builds on the Alberta - Canada Collaboratory in Cleaner Oil Sands Development Memorandum of Understanding (MOU) announced in February, 2012.

Thought leadership

In 2013-14, AI-EES staff continued its contribution to global thought leadership – as they were called upon to deliver more than 86 presentations on topics ranging from innovation to sustainability in oil sands development to competitiveness strategies and energy storage solutions. This represents a 23 per cent increase in presence over last year.

Core Programs and Support Services

Operations staff's primary work is the support of research and development through AI-EES' three strategic areas. AI-EES also hires consultants in three areas: communications, legal and HR.

AI-EES gratefully acknowledges Innovation and Advanced Education (IAE) as they provide immeasurable services in accommodation, finance, accounting, and computer support.

Knowledge transfer

As important as advancing the Corporation's work, is sharing outcomes that can lead to the acceleration of commercialization. In 2013 – 14 AI-EES made significant progress meeting its Knowledge Transfer objectives. AI-EES implemented its Open Text Content Management system and completed upgrades that will allow for the seamless transfer and sharing of research outcomes. Work on the Corporation's Research Report Database – the backbone of its records management system – helps AI-EES deliver on policies of open innovation within collaborative projects and enhance transparency in the energy and environment sectors.

Collective Measures

The Collective Measures Working Group has recommended to the CEO's of the Corporations that work on collective performance measures be put on hold until a common business plan for the corporations is developed by Alberta Innovation and Advanced Education. Performance measures need to follow the business plan; not lead it.

Restricted Funding

Alberta's Ministry of Innovation and Advanced Education provided a $30 million grant initiated in 2006 in support of the Alberta Water Research Initiative (AWRI). In 2012, IAE awarded AI-EES an additional $15 million in the area of water and tailings research. Per the grant agreements, separate annual reports will be submitted to IAE detailing the progress of the projects financed under these funds. In June 2014, as mandated within the grant, an international review panel will review the effectiveness, relevancy and impact of the AWRI.

Highlights for Water Research Initiative Grant:

AWRI had partnered with a major company on a project titled "Water Reuse and Management of SAGD Processed Waters". This project has progressed faster than anticipated and will go to field trials sooner than expected. This will result in an overall reduction in the cost of the project and a savings of $2.2 million that can be invested in other water initiatives.

A major project titled "South Saskatchewan River Basin (SSRB) Adaptation to Climate Variability" is nearing completion. The project was a collaborative undertaking by southern Albertans to explore practical options for adapting to climate variability and change and developing increased capacity for water resource management in the SSRB. An integrated river modeling tool was developed, which can assist in informing key policy and capital decisions. Several practical and implementable solutions were developed as a result of this collaborative process to improve resilience and adapt to current and future water management challenges. As part of the Water and Tailings Grant, AI-EES is extending support for this work to expand into the Red Deer River Basin to encompass the entire South Saskatchewan watershed.

Through this work, the bringing together of a group of knowledgeable and engaged stakeholders has allowed additional application to key policy directions within Alberta on water management. The group has been particularly active in the flood mitigation work that has been going on in the province and has worked with the ADM Task Force for Flood Recovery on assessing intended and unintended consequences of potential flood mitigation options from a basin wide perspective in a project supported by AI-EES.

Highlights for Water and Tailings:

In 2012, a RFP competition was held by AI-EES to support the development of relevant and scientific knowledge and technologies needed to achieve safe drinking water, healthy aquatic ecosystems, and reliable, quality water supplies for a sustainable economy. This competition resulted in 18 new water research projects with a total investment over their lifetime of $9.2 million.

Two additional projects resulted from the Tailings Action Plan and Roadmap that AI-EES completed in 2012-13. These both look at reducing the amount of water going to the tailings ponds.

APPENDIX 1

Performance Measures Methodology

Three basic methodologies are followed to arrive at the performance measures in 2013-14.

1. For the measures Securing maximum value, Informing policy, Expanding innovation capacity, Improving environmental performance, and Balanced portfolio, an analysis of the active projects in 2013-14 is undertaken by the Director, Strategic Planning and Operations.

   "Active Project" means any project that AI-EES has invested in where there was still activity on the project. The project is not considered complete until the final report is approved and the final payment is made, so a project where the final invoice is paid in 2013-14 is included in the measure. Other projects that are included in the count are projects approved by the Board but where an agreement is not necessarily signed. These are included as the work on the project has already started well before the agreement is signed. This work includes project adjudication and evaluation and agreement development.

   A project can be in the form of a grant, contribution or fee for service agreement. Any project which is a research project is included in the measure. Projects that are more supportive of the general work of AI-EES are excluded.

   Where projects could have multiple phases, but are essentially the same project, these would count as one project. If multiple recipients are collaborating on one project, this would also be counted as one project. To arrive at the number of initiatives, a simple count is performed.

   AI-EES commitment to a project is the amount of funding that comes from AI-EES base budget. If others provide funds to the project via AI-EES (i.e. the funds are given to AI-EES, then AI-EES pays the recipient) these funds are not counted as AI-EES commitment.

   Technology Informing Policy projects are jointly funded with Government of Alberta departments and/or agencies.

2. Accelerate Commercialization: To arrive at the number and value of AI-EES investments in projects according to the Technology Readiness Levels, the Executive Directors and their staff who understand the projects review the definitions and provide a best fit analysis for each project. These are then grouped and graphed. The CCEMC projects, which are managed by AI-EES staff, are analyzed in the same manner.

3. Overall Achievement of Long Term Targets - Business Tracking: the ProGrid Methodology. This method requires the licensing of ProGrid Software to complete the analysis. AI-EES (and its predecessors) has been using this methodology since 2003. It is a method that helps measure intangibles, whether those are research projects, business plans, commercialization potential or overall organizational performance.

In 2003, AI-EES created some 2020 and 2030 targets for the organization (then known as AERI). This was done by knowledgeable staff reading and reviewing relevant government documents, strategies and policies, undertaking feasibility studies, adding external knowledge and working to create some stretch targets.

Working with ProGrid consultants, AI-EES translated those targets into and Evaluation Matrix and Language Ladders, both of which are key components of the ProGrid methodology.

The Evaluation Matrix establishes the criteria to review organizational performance. This is divided into inputs, outputs and some connecting enablers. For AI-EES, the inputs for the organization are the Management Capacity, Partnerships and Finances. The outputs are our three strategic areas of Energy Technologies, Water and Environmental Management and Renewables and Emerging Technologies. Tying these together are the enablers: the method by which AI-EES is able to implement the relevant sections of various government strategies on Energy, Water and Environment.

APPENDIX 2

Titles of research project by Strategic area

Energy Technologies

- NSERC/AERI Industrial Research Chair in Petroleum Thermodynamics
- Oil Sands Engineering Chair
- Masliyah Handbooks
- Non-Aqueous Extraction of Bitumen From Oil Sands
- Hydrocarbon Upgrading Demonstration Program – Design & Fabricate a Gasifier & Dry Solid Pump
- Canadian Clean Power Coalition (CCPC) Phase 4
- Centre for Oil Sands Innovation (now Institute for Oil Sands Innovation)
- CONRAD Bitumen Extraction Projects
- NSERC CMG Foundation Chair Reservoir Simulation
- Integrated Bitumen Upgrader for Production of Synthetic Crude
- Field Upgrading Process Development
- Canadian Centre for Clean Coal/Carbon and Mineral Processing Technologies
- NSERC NEXEN Chair in Bitumen Upgrading
- AACI program
- Novel Bitumen Upgrading Process
- Field Pilot of High Yield Cross Flow Fluid Bed Upgrading Process
- NSERC Industrial Chair in Petroleum Microbiology
- The Current Practices, Future Trends, and Environmental Impacts of Hydraulic Fracturing in Alberta
- Gas to Liquids: A Promising Solution to Monetize Gas in Alberta
- Use of Low Grade Heat from Existing Coal Plant Proposal
- Bitumen Recovery from Oil Sands Tailings: Disposition and processability
- Alberta Oil Sands Competitiveness Study Interim Phase 2
- SSI Pre-Pilot
- Field Demonstration of Advanced Membranes for Syngas Cleanup and CO2 Capture
- Mass balance for an optimum Gas to Liquids/Bio Mass to Liquids hybrid system
- An Integrated Process to Simultaneously Convert Natural Gas and Low-Cost carbon resources to Liquid Fuels
- Opportunities to Improve the Competitiveness of Alberta's Oil Sands Products for U.S. Refineries
- CarbonSaver Field Demonstration Project
- Light Ends Composition in Dilbit and Conventional Crudes
- Acid enhanced bitumen visbreaking
- Catalytic Light Olefin Upgrading- Using Natural Gas for Gasoline Quality Improvement
- NSERC Foundation CMG Industrial Research Chair in Reservoir Geomechanics for Unconventional Resources Chair
- NSERC CMG Foundation Chair Reservoir Simulation

Renewables and Emerging Technologies

- Edmonton Municipal Waste P3 Biowaste Demo
- Modelling and simulation Study of Underground Coal Gasification
- In-situ Coal Gasification in Alberta – Technology and Value Proposition
- Developing Supercapacitor Energy Storage For Wind Turbine Generators P2
- New West Partnership: Asia Markets Study
- Geothermal Technology Roadmapping
- NSERC Industrial Research Chair in Energy and Environmental Systems Engineering
- Review of Bitumen Air Injection Technologies and Field Pilots
- Co-Firing Refuse Derived Fuel in Coal Facilities
- Waste Characterization Study RFP
- Potential and Prospects of Shale Oil and Shale Gas Production in Alberta
- Overview of Reversible SOFC for Electrical Energy Storage/ Synthesis of Fuels
- Determine Heating Value of Wastes
- Spray on Nanoparticle Solar
- Alberta Saskatchewan Intertie Storage ("ASISt") Pre-Development Phase.
- Feasibility analysis of a geothermal based steam/electricity generation application in Alberta
- Electrochemical Engineering Innovation by Combining iF^3 Cathode Technology with Porous Silicon Anode Technology for Advanced Battery Commercialization
- An organic Waste Inventory for Alberta
- Developing Alberta's geothermal reservoirs with EGS-CO_2 method
- Identification of Best Energy Efficiency Opportunities in Alberta' Energy Sector PI
- Identification of Best Energy Efficiency Opportunities in Alberta' Energy Sector PII
- Identification of Best Energy Efficiency Opportunities in Alberta' Energy Sector PIII

Water and Environmental Management

- Potential for and possible effects of CO_2 storage in the basal aquifer of the Northern Plains
- Alberta CO_2 Purity Project ACPP
- Chair Advanced Oxidation of Oil Sands process-Affected Water - Process Fundamentals
- Comparison of the Corrosivity of Dilbit and Conventional Crude
- CO_2 Capture from flue gas in a micro structured bed
- LiDAR/Wet areas mapping linear corridors forest recovery project
- Atmospheric metal deposition in NE Alberta
- Nutrient status and retention in reconstructed sandy soils
- CO_2-Enhanced Oil Recovery in Alberta: Barriers and Opportunity Assessment
- Oil Sands Alberta Campus Project (OSCAP)
- High Pressure De-Oiling of SAGD Produced Water
- Evaluation of Electrochemical Membranes for Carbon Capture at a SAGD Facility (Fuel Cell Energy Due Diligence)
- Knowledge Network Mapping, Gap Assessment and Roadmap for Pipeline Transportation of Petroleum Products
- Carbon Captures and Storage in the Oil Sands
- Atmospheric organics deposition in NE Alberta
- Ecosystem on Energy Storage

- Test Facility to Demonstrate Emerging Energy Efficiency Technologies Applicable to Oil and Gas Operations
- Advanced Air LiDAR
- Alberta Applied Biodiversity Conservation Chairs
- Inventory of GHG Emitting Equipment and Near Term Emissions Reduction Potential
- CO_2 conversion into value added products
- Weathering Tests for Dilbit Films
- Oil Sands Tailings Geotechnique Chair
- Membranes for CO_2 capture: FSC-PVAm Membrane
- Phased Approach to Development of Inclusive Innovation Dialogue
- Secondary Mature Fine Tailings Technologies Options
- The Effect of Weathering on Dilbit and Conventional Crude in Fresh Water Systems
- Collaborative Development Program in Alberta
- Creating a Predictive Eco-site Classification Platform for Alberta P1 Feasibility Assessment, Technology Development & Piloting
- ITM Syngas for Improved Carbon Capture and Cleaning Processing
- Wetland Assessment Handbook, A "How to" Guide for Evaluating Marsh Wetlands as Part of Oil Sands Mining Reclamation
- Evaluation of Existing Legal Instruments to Promote Integrated Water Management Decision Making
- Dewatering of Oil Sands Tailings
- Field Scale Demonstration of EKR Technology
- NSERC Industrial Research Chair in Water Quality Management for Oil Sands Extraction
- Oil and Water: Stakeholders' Framing of Resources in Alberta's Oil Sands
- Water Reuse and Management of SAGD Processed Waters
- Leading Edge Science in the Classroom
- South Saskatchewan River Basin (SSRB) adaptation to Climate Variability
- Pilot Study Demonstrating the Use of MODFLOW
- Economics of Adaptation to Extreme Hydrological Events
- Expanding Wastewater Reuse in Alberta Through Application of a Quantitative Microbial Risk Assessment Framework
- Alberta WaterPortal, Phase III
- SSRB Flood Mitigation Assessment – Bow River Basin
- Flood Indicators: Improving Forecasting in Alberta

18 Projects approved for the Water competition in April 2014:

- Baseline Isotope Geochemistry of Alberta Groundwater
- Investigation of the occurrence of pesticides in groundwater of Southern Alberta
- Climate Vulnerability and Sustainable Water Management in the SSRB - Part of the Watershed Stewardship and Ecosystem Management Focus Area
- Water Reuse In Alberta: Case Studies and Policy Development to Support Continuing Economic Development
- Advanced approaches to dealing with water disinfection byproducts
- Towards Integrated Source Water Management in Alberta
- Quantifying groundwater recharge for sustainable water resource management

- Enhancing accessibility and use of Alberta's natural water recreation areas through prevention of swimmer's itch transmission
- Sustainable urban water management in the context of climate variability and change
- Arsenic in Rural Alberta's Ground Water
- Sustainable Wetland Habitat: Reclamation Targets, Design Criteria and Wetland Policy Implementation
- Functional Flows: A Practical Strategy for Healthy Rivers
- Redevelopment and enhancement of the Irrigation Demand Model as a tool for basin water management
- Perceptions of water quality among rural Albertans and association with livestock
- Assessing the ecological impacts of water extraction on stream hydrology and Alberta's fish community structure and function
- Predicting Alberta's Water Future
- Resolving natural and anthropogenic influences to groundwater and surface water environments in the Lower Athabasca region
- Investigation of the Speciation, Toxicity, and Fate of Oil Sands Produced Water Organic Fractions during Advanced Oxidation

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AUDITOR GENERAL *Alberta*

Independent Auditor's Report
To the Board of Directors of Alberta Innovates -- Energy and Environment Solutions

Report on the Financial Statements

I have audited the accompanying financial statements of Alberta Innovates—Energy and Environment Solutions, which comprise the statement of financial position as at March 31, 2014, and the statements of operations and cash flows for the year then ended, and a summary of significant accounting policies and other explanatory information.

Management's Responsibility for the Financial Statements

Management is responsible for the preparation and fair presentation of these financial statements in accordance with Canadian public sector accounting standards, and for such internal control as management determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

Auditor's Responsibility

My responsibility is to express an opinion on these financial statements based on my audit. I conducted my audit in accordance with Canadian generally accepted auditing standards. Those standards require that I comply with ethical requirements and plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

I believe that the audit evidence I have obtained is sufficient and appropriate to provide a basis for my audit opinion.

Opinion

In my opinion, the financial statements present fairly, in all material respects, the financial position of Alberta Innovates—Energy and Environment Solutions as at March 31, 2014, and the results of its operations, its remeasurement gains and losses, and its cash flows for the year then ended in accordance with Canadian public sector accounting standards.

[Original signed by Merwan N. Saher, FCA]

Auditor General

May 27, 2014

Edmonton, Alberta

ALBERTA INNOVATES – ENERGY AND ENVIRONMENT SOLUTIONS

FINANCIAL STATEMENTS

MARCH 31, 2014

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ALBERTA INNOVATES - ENERGY AND ENVIRONMENT SOLUTIONS
STATEMENT OF OPERATIONS
YEAR ENDED MARCH 31, 2014

	2014		2013
	Budget (Note 3)	Actual	Actual
	(in thousands)		
Revenues			
Government of Alberta Grants	$ 26,630	$ 20,309	$ 22,073
Government of Canada Grants	-	36	-
Interest Income	312	568	518
Other Income	1,794	2,234	2,106
	28,736	23,147	24,697
Expenses - Directly Incurred (Note 2, Schedules 1 and 4)			
Energy Technologies	8,991	4,180	6,923
Renewable and Emerging Resources	4,276	538	1,166
Water and Environmental Management	3,778	2,228	1,251
Water and Tailings Research	5,263	3,403	90
Alberta Water Research Institute	6,096	2,595	2,591
Program Administration (Note 9)	4,111	4,887	4,237
Technical Support Services (Note 9)	3,351	2,366	2,702
	35,866	20,197	18,960
Annual Operating Surplus (Deficit)	$ (7,130)	$ 2,950	$ 5,737
Accumulated Surplus, Beginning of year		26,575	20,838
Accumulated Surplus, End of year		$ 29,525	$ 26,575

The accompanying notes and schedules are part of these financial statements.

ALBERTA INNOVATES - ENERGY AND ENVIRONMENT SOLUTIONS
STATEMENT OF FINANCIAL POSITION
AS AT MARCH 31, 2014

	2014	2013
	(in thousands)	
Assets		
Cash (Note 4)	$ 54,616	$ 41,347
Accounts Receivable	1,247	563
Tangible Capital Assets (Note 5)	51	72
	$ 55,914	$ 41,982
Liabilities		
Accounts Payable and Accrued Liabilities	$ 3,173	$ 3,230
Deferred Revenue (Note 6)	23,216	12,177
	26,389	15,407
Net Assets		
Accumulated Operating Surplus	29,525	26,575
	$ 55,914	$ 41,982

Contractual Obligations (Note 8)

The accompanying notes and schedules are part of these financial statements.

Approved by the Board of Directors

Original signed by Aaron Falkenberg — *May 27, 2014*

Director — Date

Original signed by Eric Newell — *May 27, 2014*

Director — Date

ALBERTA INNOVATES - ENERGY AND ENVIRONMENT SOLUTIONS
STATEMENT OF CASH FLOWS
YEAR ENDED MARCH 31, 2014

	2014	2013
	(in thousands)	
Operating Transactions		
Annual Operating Surplus	$ 2,950	$ 5,737
Non-Cash Item:		
Amortization of Tangible Capital Assets	21	15
(Increase) in Accounts Receivable	(684)	(241)
(Decrease) Increase in Accounts Payable and Accrued Liabilities	(57)	564
Increase in Deferred Revenue	11,039	27
Cash Provided by Operating Transactions	13,269	6,102
Capital Transactions		
Purchase of Tangible Capital Assets	-	(30)
Cash Applied to Capital Transactions	-	(30)
Increase in Cash	13,269	6,072
Cash, Beginning of Year	41,347	35,275
Cash, End of Year	$ 54,616	$ 41,347

The accompanying notes and schedules are part of these financial statements.

ALBERTA INNOVATES – ENERGY AND ENVIRONMENT SOLUTIONS

NOTES TO THE FINANCIAL STATEMENTS

MARCH 31, 2014

NOTE 1 AUTHORITY AND PURPOSE

Alberta Innovates – Energy and Environment Solutions (the Corporation) is a Provincial Corporation, as defined in the *Financial Administration Act*, that was established on January 1, 2010 and operates under the authority of the *Alberta Research and Innovation Act*. The objectives of the Corporation are to support, for the economic and social well-being of Albertans, energy and environment research and innovation activities aligned to meet Government of Alberta priorities, including, without limitation, activities directed at the development and growth of the energy and environment sectors, the discovery of new knowledge and the application of that knowledge.

The Corporation is exempt from income taxes under the *Income Tax Act*.

NOTE 2 SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES AND REPORTING PRACTICES

These financial statements are prepared in accordance with Canadian Public Sector Accounting Standards.

The measurement of certain assets and liabilities is contingent upon future events; therefore, the preparation of these financial statements requires the use of estimates, which may vary from actual results. Management uses judgment to determine such estimates. In management's opinion, the resulting estimates are within reasonable limits of materiality and are in accordance with the significant accounting policies summarized below.

a) Basis of Financial Reporting

Revenue accounting policy

All revenues are reported on the accrual basis of accounting. Cash received for which goods or services have not been provided by year end is recorded as deferred revenue.

Government transfers

Transfers from the Government of Alberta, federal and other governments are referred to as government transfers.

Government transfers and the associated externally restricted investment income are recorded as deferred revenue if the terms for use of the transfer, or the terms along with the Corporation's actions and communications as to the use of the transfer, create a liability. These transfers are recognized as revenue as the terms are met and, when applicable, the Corporation complies with its communicated use of the transfer.

All other government transfers, without terms for the use of the transfer, are recorded as revenue when the Corporation is eligible to receive the funds.

NOTE 2 SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES AND REPORTING PRACTICES (Cont'd)

Other Revenue

Other revenue includes the reimbursement of expenses from other organizations.

Royalties and licensing fees are recognized as they accrue in accordance with the relevant agreements, when an amount can be reasonably estimated, and there is reasonable assurance of collection.

Investment Income

Investment income includes interest income and is recorded on the accrual basis where there is reasonable assurance as to its measurement and collection.

Expenses

Directly Incurred

Directly incurred expenses are costs the Corporation has primary responsibility and accountability for. In addition to program operating expenses such as salaries, supplies, etc., directly incurred expenses also include:

- amortization of tangible capital assets.
- pension costs which are the cost of employer contributions for current service of employees during the year, and
- valuation adjustments representing the change in management's estimate of future payments arising from obligations relating to vacation pay.
- patents owned by the Corporation as a result of research activity are not capitalized due to the uncertain value of the benefits which may accrue to the Corporation.

Grants are recognized as expenses when authorized, and eligibility criteria, if any, are met.

Incurred by Others

Services contributed by other entities in support of the Corporation's operations have not been recorded in the financial statements and are disclosed in Schedule 4.

Valuation of Financial Assets and Liabilities

The Corporation's financial assets and liabilities are generally measured as follows:

Financial Statement Component	Measurement
Cash	Cost
Accounts Receivable	Amortized Cost
Accounts Payable and Accrued Liabilities	Amortized Cost

The Corporation has no assets or liabilities in the fair value category, has not engaged in foreign currency transactions and has no remeasurement gains or losses. Consequently, no statement of remeasurement gains or loss has been provided.

NOTE 2 SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES AND REPORTING PRACTICES (Cont'd)

Assets

Financial Assets

Financial assets are assets that could be used to discharge existing liabilities or finance future operations and are not for consumption in the normal course of operations. Financial assets of the Corporation are limited to financial claims, such as advances to and receivables from other organizations, employees and other individuals. Assets acquired by right are not included in these financial statements.

Tangible Capital Assets

Tangible capital assets of the Corporation are recorded at historical cost and amortized on a straight-line basis over the estimated useful lives of the assets. The threshold for capitalizing new systems development is $250,000 and the threshold for major systems enhancements is $100,000. The threshold for all other tangible capital assets is $5,000.

Net Assets

Net asset represent the difference between the carrying value of assets held by the Corporation and its liabilities.

Canadian Public Sector Accounting Standards require a "net debt" presentation for the statement of financial position in the summary financial statements of governments. Net debt presentation reports the difference between financial assets and liabilities as "net debt" or "net financial assets" as an indicator of the future revenues required to pay for past transactions and events. The Corporation operates within the government reporting entity, and does not finance all its expenditures by independently raising revenues. Accordingly, these financial statements do not report a net debt indicator.

Liabilities

Liabilities are recorded to the extent that they represent present obligations as a result of events and transactions occurring prior to the end of the fiscal year. The settlement of liabilities will result in sacrifice of economic benefits in the future.

NOTE 2 SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES AND REPORTING PRACTICES (Cont'd)

Future Accounting Changes

PS 3260 Liability for Contaminated Sites
In June 2010 the Public Sector Accounting Board issued this accounting standard effective for fiscal years starting on or after April 1, 2014. Contaminated sites are a result of contamination being introduced into air, soil, water, or sediment of a chemical, organic, or radioactive material, or live organism that exceeds an environmental standard. The Corporation would recognize a liability related to the remediation of such contaminated sites subject to certain recognition criteria. Management is currently assessing the impact of this change in accounting standard on the financial statements effective the next fiscal period.

NOTE 3 BUDGET
(in thousands)

A business plan with a budget deficit of $7,130 was approved by the Board on March 28, 2013 and the full financial plan was submitted to the Minister of Innovation and Advanced Education.

NOTE 4 CASH
(in thousands)

Cash in the amount of $54,616 (2013 - $41,347) include deposits in the Consolidated Cash Investment Trust Fund (CCITF) of the Province of Alberta. The CCITF is administered by the Ministry of Treasury Board and Finance with the objective of providing competitive interest income to depositors while maintaining appropriate security and liquidity of depositors' capital.

The portfolio is comprised of high-quality short-term and mid-term fixed-income securities with a maximum to maturity of three years. As at March 31, 2014, securities held by the Corporation had a time-weighted return of 1.2% per annum (2013: 1.3% per annum). Due to the short-term nature of CCITF investments, the carrying value approximates fair value.

NOTE 5 TANGIBLE CAPITAL ASSETS
(in thousands)

	Equipment[1]	Computer Hardware and Software	Total
Estimated Useful Life	3-20 years	5 years	
Historical Cost			
Beginning of year	$ 76	$ 30	$ 106
Additions	-	-	-
	76	30	106
Accumulated Amortization			
Beginning of year	34	-	34
Amortization expense	15	6	21
	49	6	55
Net Book Value at March 31, 2014	$ 27	$ 24	$ 51
Net Book Value at March 31, 2013	$ 42	$ 30	$ 72

[a] Equipment consists of office equipment

NOTE 6 DEFERRED REVENUE
(in thousands)

Deferred revenue represents unexpended, externally restricted funds.

	2014				2013
	Water Research Fund	Waste Mgmt Tech	Other	Total	Total
Balance, Beginning of Year	$ 12,177	$ -	$ -	$ 12,177	$ 12,150
Grants Received - Government of Alberta	5,060	9,600	1,970	16,630	4,440
Grants Received - Other	-	-	280	280	-
Interest Income	164		-	164	117
Recognized as Revenue:					
Interest Income	(164)	-	-	(164)	(117)
Government of Alberta Grants	(5,271)	-	(600)	(5,871)	(4,413)
Balance, End of Year	$ 11,966	$ 9,600	$ 1,650	$ 23,216	$ 12,177

NOTE 7 BENEFIT PLANS
(in thousands)

The Corporation participates in the multi-employer pension plans: Management Employees Pension Plan (MEPP), the Public Service Pension Plan (PSPP), as well as, a Supplementary Pension Plan (SRP) for Public Service Managers. The Corporation does not have sufficient plan information on MEPP, PSPP or the SRP to follow the standards for defined benefit accounting and therefore follows the standard for defined contribution accounting. Accordingly the pension expense for these pension plans is equivalent to the annual contributions of $375 (2013 - $393).

At December 31, 2013, the Management Employees Pension Plan reported a surplus of $50,457 (2012 – deficiency $303,423), the Public Service Pension Plan reported a deficiency of $1,254,678 (2012 – deficiency $1,645,141) and the Supplementary Retirement Plan for Public Service Managers reported a deficiency of $12,384 (2012 – deficiency $51,870). The Corporation is not responsible for future funding of the plan deficit other than through contribution increases.

NOTE 8 CONTRACTUAL OBLIGATIONS
(in thousands)

Contractual obligations are obligations of the Corporation to others that will become liabilities in the future when the terms of those contracts or agreements are met.

	2014	2013
Obligations under contracts and grants	$ 37,028	$ 49,540

Estimated payment requirements for each of the next five years are as follows:

	Contracts	Grants	Total
2014-15	$ 1,444	$ 17,549	$ 18,993
2015-16	464	12,394	12,858
2016-17	440	2,658	3,098
2017-18	179	1,725	1,904
2018-19	165	-	165
Thereafter	10	-	10
	$ 2,702	$ 34,326	$ 37,028

NOTE 9 RESEARCH ADMINISTRATION

(in thousands)

The Corporation carries out activities on behalf of Climate Change and Emissions Management Corporation (CCEMC) and invoices CCEMC directly. Revenues are recorded in Other Income and expenses are recorded in Program Administration and Technical Support Services. Amounts for CCEMC are as follows:

	2014	2013
Revenues		
Other Income	$ 1,009	$ 707
Expenses		
Program Administration	725	675
Technical Support Services	284	32
	$ 1,009	$ 707

NOTE 10 Comparative Figures

Certain 2013 figures have been reclassified to conform to the 2014 presentation.

NOTE 11 APPROVAL OF FINANCIAL STATEMENTS

These financial statements were approved by the Board of Directors.

ALBERTA INNOVATES - ENERGY AND ENVIRONMENT SOLUTIONS
SCHEDULES TO THE FINANCIAL STATEMENTS
YEAR ENDED MARCH 31, 2014

Schedule 1 - Expenses Directly Incurred by Object

	2014		2013
	Budget	Actual	Actual
Grants	$ 28,404	$ 12,396	$ 11,111
Supplies and Services	4,436	4,419	4,844
Salaries, Wages & Employee Benefits	3,005	3,310	2,934
Amortization of Tangible Capital Assets	21	21	15
Financial Transactions and Other	-	51	56
	$ 35,866	$ 20,197	$ 18,960

Schedule 2 - Salary & Benefits Disclosure
Year ended March 31, 2014

	2014				2013
	Base Salary (1)	Other Cash Benefits (2)	Other Non-Cash Benefits (3)	Total	Total
	(in thousands)				
Chairman of the Board	$ -	$ 4	$ -	$ 4	$ 6
Board Members	-	32	1	33	43
Chief Executive Officer	260	75	12	347	333
Executives:					
Executive Director, Energy Technologies	164	-	50	214	206
Executive Director, Renewable and Emerging Resources	165	-	47	212	205
Executive Director, Water Resources and Environmental Management (4)	179	-	54	233	319
Director, Strategic Planning and Operations	124	-	37	161	155

(1) Base salary includes pensionable base pay.

(2) Other cash benefits include honoraria for Board Members and car allowance for the Chief Executive Officer. No bonuses were paid in 2013 or 2014.

(3) Other non-cash benefits include employee benefits and contributions or payments made on behalf of employees including pension and supplementary retirement plan, health care, dental coverage, group life insurance, short and long term disability plans, Workers Compensation Board premiums, accomodations, learning account items, health spending account items and professional memberships.

(4) This position was held by two individuals at different times during the prior year. The duties of Chief Technical Officer were added to the position during the year.

Schedule 3 - Related Party Transactions
Year ended March 31, 2014

Related parties are those entities consolidated or accounted for on a modified equity basis in the Governmnet of Alberta's financial statements.

Entities in the Ministry refers to entities consolidated in the Ministry of Innovation and Advanced Education. Other entities outside of the Ministry relates to the remaining entities consolidated at the Provincial level.

Alberta Innovates - Energy and Environment Solutions had the following transactions with related parties which are recorded on the Statements of Operations and the Statements of Financial Position at the amount of consideration agreed upon between the related parties:

	Entities in the Ministry		Other Entities Outside of the Ministry	
	2014	2013	2014	2013
	(in thousands)			
Revenues				
Grants	$ 20,256	$ 22,073	$ 53	$ -
Other	72	227	-	320
	$ 20,328	$ 22,300	$ 53	$ 320
Expenses – Directly Incurred				
Grants	$ 5,807	$ 7,229	$ -	$ 2
Other Services	382	252	3	5
	$ 6,189	$ 7,481	$ 3	$ 7
Payables to	$ 1,715	$ 1,226	$ -	$ 2
Deferred Revenue	$ 13,296	$ 12,177	$ 9,640	$ -
Contractual Obligations	$ 11,863	$ 14,487	$ -	$ -

The above transactions do not include support service arrangement transactions disclosed below.

The Corporation also had the following transactions with related parties for which no consideration was exchanged. The amounts for these related party transactions are estimated based on the costs incurred by the service provider to provide the service. These amounts are not recorded in the financial statements. Accommodation expenses incurred by others are disclosed in Schedule 4.

	Other Entities Outside of the Ministry	
	2014	2013
	(in thousands)	
Expenses – Incurred by Others		
Accommodation [1]	$ 320	$ 276

(1) The Corporation's share of accommodation costs is based on the proportion of space occupied compared to the total space occupied by all Ministries.

Schedule 4 - Allocated Costs
Year ended March 31, 2014

	2014			2013
		Expenses incurred by others [2]		
Program	**Expenses [1]**	**Accommodation Costs**	**Total Expenses**	**Total Expenses**
		(in thousands)		
Energy Technologies	$ 4,180	$ -	$ 4,180	$ 6,923
Renewable and Emerging Resources	538	-	538	1,166
Water and Environmental Management	2,228	-	2,228	1,251
Water and Tailings Research	3,403	-	3,403	90
Alberta Water Research Institute	2,595	-	2,595	2,591
Program Administration (Note 9)	4,887	320	5,207	4,513
Technical Support (Note 9)	2,366	-	2,366	2,702
	$ 20,197	$ 320	$ 20,517	$ 19,236

(1) Expenses – Directly Incurred as per Statements of Operations.

(2) The Corporation receives financial processing and reporting services from the Department of Innovation and Advanced Education at no cost. The dollar value of these services cannot be accurately determined.